

Mineral Industry Surveys

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MANUFACTURED ABRASIVES IN THE SECOND QUARTER 2004

The U.S. Geological Survey (USGS) collects quarterly data on manufactured abrasives through its survey of producers. Manufactured abrasives included in this report are fused aluminum oxide, silicon carbide, and metallic abrasives. Where indicated, Canadian and United States data are combined to protect proprietary information. Except where noted, the quantities cited in this report are in metric units. All unit value calculations in this report are based on unrounded data.

Fused Aluminum Oxide

The total production during the second quarter of 2004 was less than 2,500 metric tons of regular-grade crude fused aluminum oxide. Only one company, which operates one plant in Canada, produced fused aluminum oxide. The production quantity is not reported to avoid disclosing proprietary data.

According to the U.S. Census Bureau, U.S. imports of crude fused aluminum oxide through May 2004 were 45,600 tons valued at \$12.0 million, or an average of \$263 per ton. About 72% of the imports came from China, 16% from Canada, 12% from Venezuela, and less than 1% from other countries. Imports of crude fused aluminum oxide from China may not all be abrasive-quality material.

U.S. imports of refined and ground fused aluminum oxide through the month of May 2004 reached 20,500 tons valued at \$18.3 million, or an average of \$891 per ton. The top five sources of the refined and ground imports were Venezuela (19%), Germany (18%), Brazil (16%), Austria (11%), and Canada (8%).

U.S. exports of fused aluminum oxide through May 2004 were 5,350 tons. The exports were valued at \$14.2 million, or \$2,650 per ton. Germany received 25% of the exports that were shipped; Canada 24%, Mexico 20%, Republic of Korea 10%, Japan 8%, and others 13%.

The Department of Defense stores fused aluminum oxide in the National Defense Stockpile (NDS). All of the NDS aluminum oxide, however, has been authorized by law for disposal. During the first quarter of 2004, the Department of Defense reported sales of 1,810 tons of fused aluminum oxide abrasive grain valued at \$606,000. At the end of the first

quarter, NDS reported that 8,290 tons of fused aluminum oxide abrasive grain with an estimated value of \$3.1 million remained in the stockpile. The first quarter sales met the authorized FY2004 Annual Materials Plan for sales of fused aluminum oxide abrasive grain, so there will not be any further sales during FY2004. The NDS has sold all of the crude fused aluminum oxide in the stockpile (Janet Rollins, Defense National Stockpile Center, oral commun., 2004). No further stockpiling of crude fused aluminum oxide by the Department of Defense is anticipated. If the current authorized disposal rate and NDS sales schedules are continued, all of the stockpiled fused aluminum oxide abrasive grain could be sold by the end of 2006.

Silicon Carbide

Abrasive-grade silicon carbide is produced by one company in the United States. The total production during the second quarter of 2004 was estimated to be 10,000 tons of abrasive-grade silicon carbide with an estimated value of \$5.3 million. This total production figure has been rounded to the nearest 5,000 tons to avoid disclosing proprietary data.

Total U.S. imports of crude silicon carbide for the year through May 2004 were 57,600 tons valued at \$20.7 million; imports from China alone were 31,800 tons valued at \$12.1 million. The average price of imported crude silicon carbide, excluding Chinese crude, was \$333 per ton; the average price of Chinese crude was \$380 per ton. U.S. imports of refined and ground silicon carbide for the same period were 15,300 tons valued at \$17.8 million, or an average of \$1,160 per ton. During the period, China accounted for 55% of the crude material and 27% of the refined and ground material.

U.S. exports of crude silicon carbide through May 2004 were reported to be 1,620 tons with a value of \$2.14 million. Exports of refined and ground silicon carbide were 4,980 tons valued at \$3.97 million. About 98% of the crude material was shipped to, in decreasing order, Norway, Japan, and Mexico. Most of the refined material went to, in decreasing order, Canada and Mexico.

The NDS has sold all of the silicon carbide in the stockpile.

No further stockpiling is anticipated.

Metallic Abrasives

Metallic abrasives information was collected from 12 companies operating 14 U.S. plants. During the second quarter of 2004, four companies produced 49,200 tons of steel shot and grit, an increase of 6%, compared with the same period in 2003. At least one of the companies produced shot and grit from reclaimed material. Total second quarter production was valued at \$22.3 million, or an average of \$454 per ton. Total annual production in 2003 was 192,000 tons valued at \$86.2 million; 2002 production was 201,000 tons valued at \$91 million.

Shipments of steel shot and grit in the second quarter of 2004 were 53,300 tons valued at \$24.9 million, or an average of \$467

per ton, compared with shipments during the second quarter of 2003, which were 52,400 tons valued at \$24.6 million for an average of \$470 per ton.

Second quarter production of other types of metallic shot and grit (primarily cut wire shot) was 383 tons valued at \$1.31 million. Six companies produced shot.

Imports of all types of metallic shot and grit through May 2004 were 6,760 tons valued at \$3.98 million for an average of \$588 per ton. Canada was the largest supplier, accounting for 67% of the tonnage imported.

Exports of all types of metallic abrasives through May 2004 were 11,900 tons valued at \$10.1 million, or an average of \$847 per ton. Shipments to Mexico accounted for 49% of the exports; an additional 46% was shipped to Canada.

TABLE 1
MANUFACTURED ABRASIVES¹

(Metric tons, unless otherwise specified)

Source and product	2003						2004			
	Second quarter		Third quarter		Fourth quarter		First quarter		Second quarter	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
United States and Canada, production: ²										
Silicon carbide ³	10,000	\$5,500	10,000	\$5,100	10,000	\$4,900	10,000	\$5,300	10,000	\$5,300
Crude aluminum oxide, regular-grade	15,000	4,300	(4)	(5)	(4)	(5)	(4)	(5)	(4)	(5)
United States, production:										
Steel shot and grit	46,500	20,900	49,200	21,900	42,100	18,800	46,400 ^r	21,000 ^r	49,200	22,300
Other shot and grit ^{5, 6}	267	1,000	334	1,190	345	1,250	242 ^r	783 ^r	383	1,310
Total	46,800	21,900	49,500	23,000	42,400	20,000	46,700 ^r	21,700 ^r	49,600	23,700
United States, shipments:										
Steel shot and grit	52,400	24,600	57,400	27,000	46,600	21,400	51,600	24,400	53,300	24,900
Other shot and grit ^{5, 6}	271	1,110	310	1,280	323	1,320	341	1,260	340	1,250
Total	52,700	25,700	57,800	28,300	46,900	22,700	52,000	25,700	53,600	26,100

⁶Estimated. ^rRevised.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Quantities are rounded to the nearest 5,000 tons to avoid disclosing proprietary data; values are estimated.

³Includes materials for metallurgical uses and other applications.

⁴Less than 2,500 tons.

⁵Less than \$500,000.

⁶Includes cut wire shot and reclaimed shot and grit from primary producers.